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Wildlife

IN NORTH CAROLINA

TEN CENTS

MAY 1949

Much of the fun of fishing comes from anticipation, preparation, and the companionship of real sportsmen.

FISHING DAYS ARE HERE AGAIN

More fishermen than ever before in the history of North Carolina will take to the lakes and streams this summer to engage in healthful sport and recreation. This means that a greater demand will be made on our fisheries resources than ever before. Thinking sportsmen and conservationists will take only the number of fish they need, instead of trying to take all of the fish they can catch.

WILDLIFE IN NORTH CAROLINA

The Official Publication of The North Carolina Wildlife Resources Commission, Raleigh

A monthly magazine devoted to the protection and restoration of our Wildlife Resources and to the improvement of hunting and fishing in North Carolina

STATE OF NORTH CAROLINA

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Governor

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May 1949 Vol. XIII No. 5

COVER

This month's cover is a reproduction of an oil painting by Artist Win Donat. The fish depicted is a largemouth bass, the most sought-after game fish in the country during summer months. Donat's picture is unusual in that, unlike so many pictures one sees of bass, it does not have some kind of lure adorning its mouth.

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Wildlife in North Carolina recognizes the need for close coöperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication all news items, articles, photographs, and other material dealing with the various activities which combine to make North Carolina a better state for hunting and fishing. Full credit is given for all material published.

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If the May or June issues are late in reaching our readers, part of the reason will lie in the fact that the time has come to renew our printing contract, and possibly change printers.

Subscribers to Wildlife In North Carolina will note a date on the address label. This is the date of expiration. To be sure that the magazine reaches you continuously, take note of your expiration date and be ready to renew your subscription on time.

Rod Amundson, *Editor.*

LET'S LEARN ABOUT OUR WILDLIFE

The Fourth of a Series on Game Birds and Game Mammals of North Carolina

The Raccoon

Photos Courtesy U. S. Fish and Wildlife Service

By Rod Amundson

A coon may not be able to whip his weight in wildcats, but pound for pound he can lick any dog unfortunate enough to become embroiled in a hand to hand combat. For sheer grit and courage, the coon has no peer in the animal world. Where other game animals depend on speed and craft for defense, the coon depends on his intelligence and his ability as a fighter.

The name "raccoon," or more commonly "coon," has been derived from an attempt by early settlers to spell the word "Arakun" used by the Algonquin Indians to name the animal. Altogether, there are ten subspecies of coons in America. The species native to North Carolina is named, in scientific terminology, *Procyon lotor lotor*. The generic name "Procyon" is derived in a somewhat far-fetched manner from the Greek words "pro" meaning "before" and "cyon" meaning "a dog," the latter being the name of a group of stars which rise above the western horizon just before the dog-star Sirius. The specific name "lotor" is a Greek word meaning "a washer"—descriptive of the coon's habit of washing its food.

Anyone familiar with this important game animal and fur bearer has little need of a detailed description. In general, adults weigh up to 15 pounds, with 24-25 pound specimens unusual and 50-pound specimens extremely rare. The general color is a grizzler gray and tan, with a distinct black mask over the eyes and almost white patches above the eyes which give the animal a studious expression.

The tail is long and bushy, with black rings which give rise to the name "ring-tail." Albinism is quite frequent, with a number of pure white specimens reported. A black phase, called melanistic, occurs quite frequently. The species native to Nebraska has produced a number of specimens which are a brilliant creamy yellow, almost identically the color of a "yellow tomcat." The fur of such individuals is beautiful beyond description, and much softer than the ordinary.

The feet of the coon have five well-developed toes with fixed claws. The soles are bare, and the hind feet plantigrade (walking on the heel, as in the case of bears). The front feet, or hands, are extremely dexterious. Owners of pet coons have observed their

Pound for pound, a coon can lick any dog that is unfortunate enough to become embroiled in a hand-to-hand fight.

Den trees are favorite homes of coons. Cutting down den trees is not only illegal, but a sure way to destroy coon populations.

ability to unlatch doors, remove corks from bottles, and get into an endless detail of mischief.

History

Coons caught the imagination of early settlers and explorers. On no less an authority than Captain John Smith, the coon was described as ". . . much like a Badger, but living on trees like a Squirrel." The skins were early recognized as being valuable for making garments. Coonskin caps soon became the badge of the woodsman. Indians supplied a great number of coonskins to early traders, and the furs became popular in England, France, and Poland. Raccoon coats became extremely popular in collegiate circles in this country during the Twenties, and no well-dressed college man would think of attending a football game or a winter social function without the inevitable coonskin coat.

The pioneers, and many people today, considered the coon an excellent table dish. This fact, added to the value of the pelts, resulted in a terrific toll of coons over a long period of years until protection measures became necessary. In recent years, however, coon pelts have fallen off in market value, and although thousands are still taken each year (26,768 in North Carolina in the 1947-1948 trapping season) the greatest worth of the coon is its value as a sporting animal. Despite the inroads made by trappers and hunters, coon populations seem to be holding up very well, and it is believed that the animal is still extending its range. It is one of a very few wild species which have benefited by the encroachment of agriculture. It is very fond of green corn and other grains, as well as orchard fruits and berries.

Behaviour

Anyone who has had a coon as a household pet knows that it is a very intelligent and unusual animal. It is endowed with a vivid curiosity and an infinite capacity for mischief. If left free to roam the house it will wreak havoc with bric-a-brac, and put the pantry in a state of pandemonium. It will make life miserable for any housecats that happen to be around, and is apt to give old Rover a severe case of hysteria. Ordinarily coons will get along very well with other household pets, but in the case of squabbles, which are apt to arise with considerable frequency, the coon seldom comes out second best.

In the wild, the coon is strictly a night prowler, preferring to spend days asleep in a hollow log or tree, or in the sun in warm weather. His nocturnal search for food may take him from cultivated fields to woodlands to the courses of streams, the edges of lakes and ponds, or through swamps and marshes. Favored items of food such as frogs and crayfish are found near water, while other dietary items may be taken from the nearest lake or stream.

The coon is an excellent climber of trees, but has little ability as a runner.

Food Habits

Like his larger relatives, the bears, the coon is an omnivorous eater. He eats a variety of nuts, fruits and berries, will catch small fish stranded in flood pools, and happily wades into streams to turn over stones for crayfish lurking under them. He will spend hours in quest of frogs, either in their watery habitat or out in the tall marsh grasses. He is fond of fresh water clams, and even oysters. The taste for oysters is sometimes fatal. The coon tries to get the meat from

Marshes and streams furnish much food for coons, but only when water is available do coons wash their food before eating it.

The facial markings of the coon gives him an appearance of intelligence and sagacity, and coons live up to this appearance.

oysters while the shell is open, but instances have been recorded where the inquisitive front paws have been trapped by the closing shell, and the coon drowned with the incoming tide.

Its appetite for green corn has gotten the coon in trouble with farmers, and at the same time exploded the theory that coons bathe all their food in water before eating it. Midnight raids on the poultry house have brought many a coon to an untimely demise at the receiving end of a load of shot. There have been instances of coons raiding beehives, but the activity occurred during cold weather when the bees were incapable of defending their store of honey.

Coons are very fond of turtle eggs. The writer spent a number of interesting hours on a moonlit night watching painted turtles come ashore to lay their eggs only to have them dug up and devoured by coons which prowled along the sandy beach.

Grubs, beetles, grasshoppers, and other insects form an important part of the coon's diet. Snakes and lizzards are other items. Pet coons will eat almost anything edible, cooked or raw, with a special liking for sweets and pastry. Grapes are a favored item, and orchard fruits such as apples, peaches, plums, and cherries are included in the menu of both tame and wild coons.

Coons like to wash their food whenever water for such activity is available. They may take a frog or a crayfish dripping from the water and then wash it thoroughly before eating it. Where no water is available, coons will eat unwashed food.

Breeding

There is some argument as to whether coons are polygamous, but there is much evidence to indicate that males may mate with several females. The mating season begins in mid-winter, and the young are gestated for 63 days. Litters vary from three to six young, with four the usual number. Coons have a very definite family life, and many observers believe that males help with the family chores. The family group will stay together until a new crop of youngsters comes along. Parent animals take their young on foraging expeditions to teach them how to fish for crayfish, clams, and frogs. It is very doubtful that adults bring food to their young, but instead teach them to search for food at weaning time.

Houses may be made in hollow trees, hollow logs, crevices and caves, or the abandoned dens of other animals. Artificial dens of various types are accepted and are an important means of coon management.

Enemies

Other than men and dogs, coons have few natural enemies, since there are few animals or birds of sufficient strength to present a serious menace. There are a few internal and external parasites, but these seldom occur in sufficient number to inflict any serious damage. The coon is subject to certain seasonal periods which may cause hardship. During late winter and early spring months food is scarce, and the coon depends on stored fat for sustenance. During

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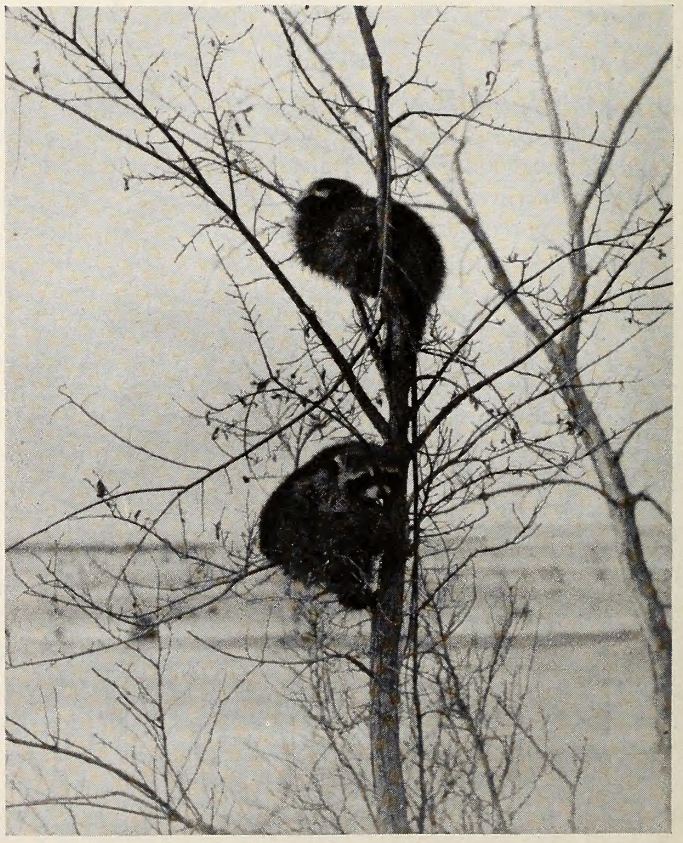


Young coons are as playful as kittens, and make excellent household pets. A permit is required to keep pet coons legally.

1949 FARM GAME PLANTINGS COMPLETED

A single row of multiflora rose seedlings planted 15 inches apart will make an impenetrable living fence—and a haven for wildlife.

Bobwhite quail in North Carolina will benefit by plantings of two and one half tons of lespedeza seeds and more than a million lespedeza and multiflora rose plants throughout the State as a part of the Wildlife Resources Commission's game habitat restoration program, according to Clyde P. Patton, Executive Director of the Commission.

When planting operations were completed in April, a total of 340 acres of bicolor lespedeza and over 200 acres of sericea lespedeza had been planted on farms in various parts of the State. The total acreage of lespedeza plantings is divided into individual cover strips 400 feet long and 15 feet wide.

Multiflora rose, an oriental shrub which has only this year been introduced as a game cover plant in North Carolina, is being planted on a test basis. About 55,000 linear feet, or ten and one-half miles of multiflora seedings are being planted on nine demonstration areas and on hundreds of individual farms. A single row of multiflora plants is sufficient to produce a living fence several feet wide, and tall and dense enough to hold livestock within an enclosure of the plantings. At the same time multiflora produces ideal quail and rabbit cover and food.

Due to drought conditions in states from which bicolor lespedeza was ordered for this year's planting program, only about one fourth of anticipated planting stock was actually delivered. This shortage made necessary a reduction in planting operations this year, but plans are already under way to prevent future shortages of planting stock.

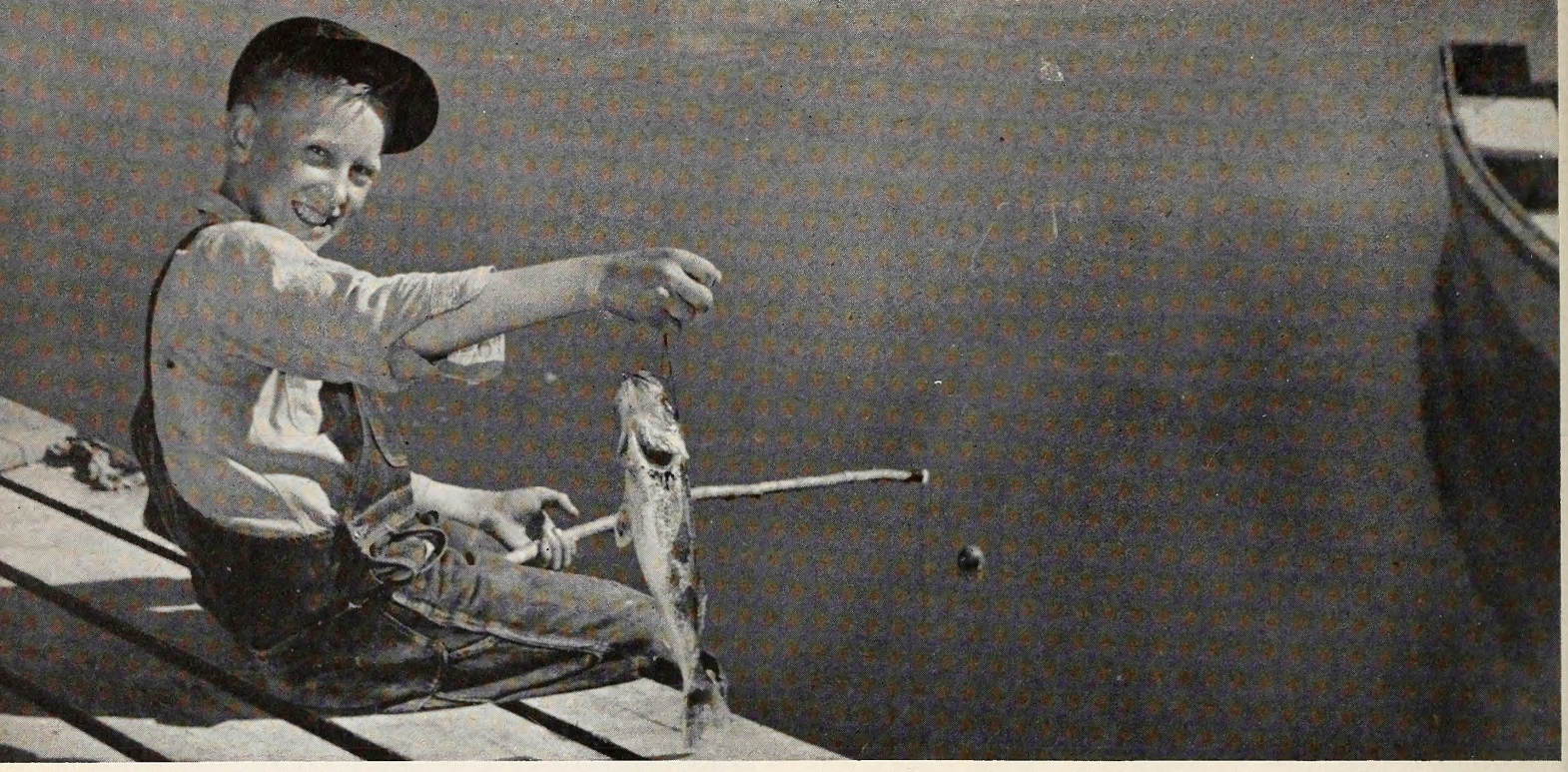
The Wildlife Resources Commission is leasing enough land in 5-acre blocks in widely scattered sections of the State to produce 4,000,000 bicolor lespedeza and multiflora rose plants each year. By locating the 5-acre nursery plots in widely separated areas the danger of crop failure due to drought will be greatly reduced. As often happens, North Carolina may suffer from severe drought in one part of the State while other sections get adequate rainfall. Another advantage of strategically located nursery plots will be a reduction of the distance necessary to haul the plants from the nursery beds to farms where plantings are to be made.

The Commission's planting program is a coöperative affair. Three-fourths of operational costs for the habitat planting projects are paid from federal funds, and one-fourth from the game fund. The Commission works in close coöperation with District Conservationists of the Soil Conservation Service, and with sportsmen and individual farmers who are interested in planning for wildlife on their land.

Initial plans for the development projects called for the establishment of demonstration areas in various sections of the State which are designed to show the benefit of habitat plantings to wildlife and as soil conservation measures. At present nine large demonstration areas each approximately 1,000 acres in size are in operation. Additional areas of this size will be established only when the need for such areas is clear. Actually, all of the plantings made on the hundreds of individual farms in the State serve

(Continued on page twenty)

These men are planting bicolor lespedeza seedlings. Bicolor is one of the most important plantings for quail restoration.



TVA reservoirs provide recreation for thousands, both young and old. This young man is proud of his sauger pike taken from a TVA impoundment.

FISHERIES DEVELOPMENT

IN THE TVA RESERVOIRS (From the TVA Annual Report)

The fiscal year saw several important fisheries developments: (1) An extensive drawdown on storage waters during the summer of 1947 and the following spring had an adverse effect on fishing. (2) Studies on the Little Tennessee indicate drastic changes in that river since completion of Fontana Dam; the river now appears suitable for trout. (3) Evidence that most fish in TVA waters are not harvested continues to pile up. (4) Extensive growth studies on Norris Reservoir show game fish still growing rapidly ten years after impoundment of that water. (5) Collaboration with other agencies was closer and there was more of it than ever before.

Effects of Drawdown

In the spring of 1947 three storage reservoirs were being drawn down at spawning time. Two of these (Santeetlah and Chatuge) were examined last fall to find out what the effect had been. No harm was done in either case. Seining on Nottely, the third reservoir, during the spring of 1948 revealed a large population of crappie spawned the previous spring. Conclusion: fish reproduction in TVA waters in 1947 was successful in spite of the spring drawdown.

Summer drawdown on storage reservoirs probably did have an adverse affect on fishing as claimed by anglers. But poor summer fishing is to be expected, largely because of the superabundance of fish food during those months. When game fish have plenty of food available they seldom get hungry enough to be tempted by an angler's bait.

Early spring fishing on storage waters was good in 1948. But as soon as the spring drawdown began, fishing deteriorated. On storage waters in general, 1948 spring fishing was the poorest in many years—perhaps the poorest in TVA history. The decline was attributed to the drawdown. Downriver during the same period, mainstream reservoirs were held at reasonably constant levels and the fishing was above average.

Even though they may not prevent successful spawning, falling water levels in the spring do make for poor fishing.

Creel Census

A creel census covering the period April 1 to May 15 was taken on five reservoirs in 1948. In comparison with comparable records collected the preceding spring, the catch per trip on Norris dropped from 2.3 fish to 1.7; on Cherokee it skidded from 8.3 to 3.3. These were the only storage reservoirs sampled; but according to reports from fishermen and boat dock operators, the same slump occurred on all, with the possible exception of Hiwassee. On mainstream reservoirs, however, the story was different. Between April 1 and May 15 the catch per trip on Pickwick went up from last year's 4.4 to 6.4; on Wheeler it increased from 3.6 to 3.7; and on Guntersville tail-

water 10.7 fish were taken per trip this year as against 7.2 last year.

Little Tennessee Studies

Studies on the Little Tennessee early this fiscal year showed that river no longer suitable for such warm water fish as bass and walleye. Since Fontana Dam was built on its headwaters this river has been fed mainly by cold water from the lower reservoir depths. Sampling of oxygen and temperature revealed a range that appears suitable for trout. Superficial food studies also indicate a relatively abundant supply of aquatic insects, the chief diet of trout.

As a result of these studies by TVA fisheries workers, and on their recommendations, the Tennessee Division of Game and Fish planted 45,000 rainbow trout fingerlings in the Little Tennessee this spring.

This river was once considered one of the better fishing streams in the Tennessee Valley; walleye and smallmouth bass were abundant and they grew to large size. Now these species are gone, having migrated presumably to Watts Bar reservoir. The excellent fishing for sauger and walleye immediately below Fort Loudoun Dam in the last few years may have been a result of this migration. It may also account for the fact that three of the top ten walleye entered last year in a national big fish contest were taken in Watts Bar Reservoir.

If the Little Tennessee can be successfully converted into a trout stream, fishing may become more attractive than it ever was in pre-Fontana days.

Fish Harvesting

Evidence that fish harvesting in TVA waters is far from adequate continues to mount. Another year of study points to the same conclusion: most adult fish of desirable size and species are not being caught.

The situation is bad enough on storage reservoirs but it is even worse on mainstream waters. Tagging studies have been conducted on Wheeler Reservoir for the past three years. Here are the results: In 1946, 1,151 white crappie and white bass were tagged and released in a heavily fished portion of the reservoir; 15 were recaptured by fishermen. In 1947, 1,102 more were tagged; again only 15 were recaptured. This past spring another 1,000 white crappie were tagged; only 8 had been retaken by the Middle of June. This means less than two per cent of the available fish crop harvested.

On lower Guntersville Reservoir the story was the same. Of 2,000 fish tagged early in 1948, only 24 had been recaptured by June 17. On Fort Loudoun 276 fish were tagged in 1947; three have been recaptured to date.

On storage reservoirs harvesting is only slightly better. Of 507 walleye, sauger, and bass tagged on Norris early in 1947, 83 had been retaken by June 1 of this year. On Cherokee it was 622 tagged and 28 recaptured; on Hiwassee 38 tagged, 10 recaptured.

To get some comparison between the degree of harvesting on small and large waters, tags were provided for a "tagging rodeo" on a small lake near Birmingham, Alabama. Here 33 adult bass were tagged prior to April 1. With very heavy fishing and prizes offered for returned tags, 15 of the tagged fish had been retaken by mid-June.

Where only a small portion of the fish crop is harvested there is the possibility of overpopulation. The larger the population, the keener the competition for food, the slower the growth. Evidence from Wheeler Reservoir indicates an approaching overpopulation of white crappie right now. Three-year-old fish average only 7.7 inches in length; four-year-olds 8.6 inches.

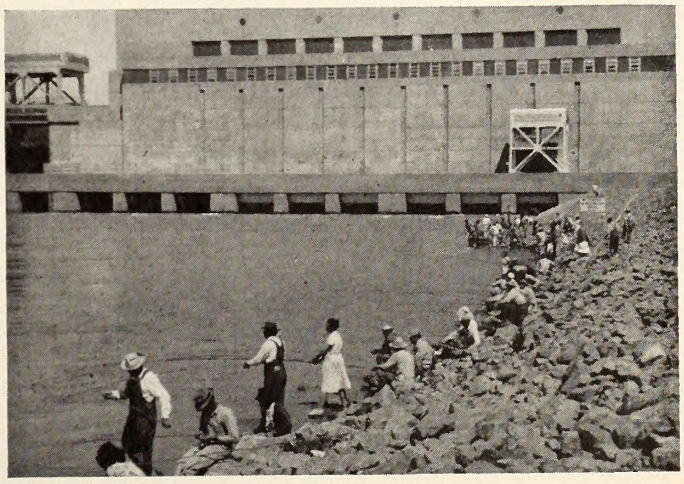
In view of the 1947 spring drawdown and the resulting poor fishing, sportsmen may be moved to agitate for stocking and a return of the closed season. Such actions are still not called for.

Growth Studies

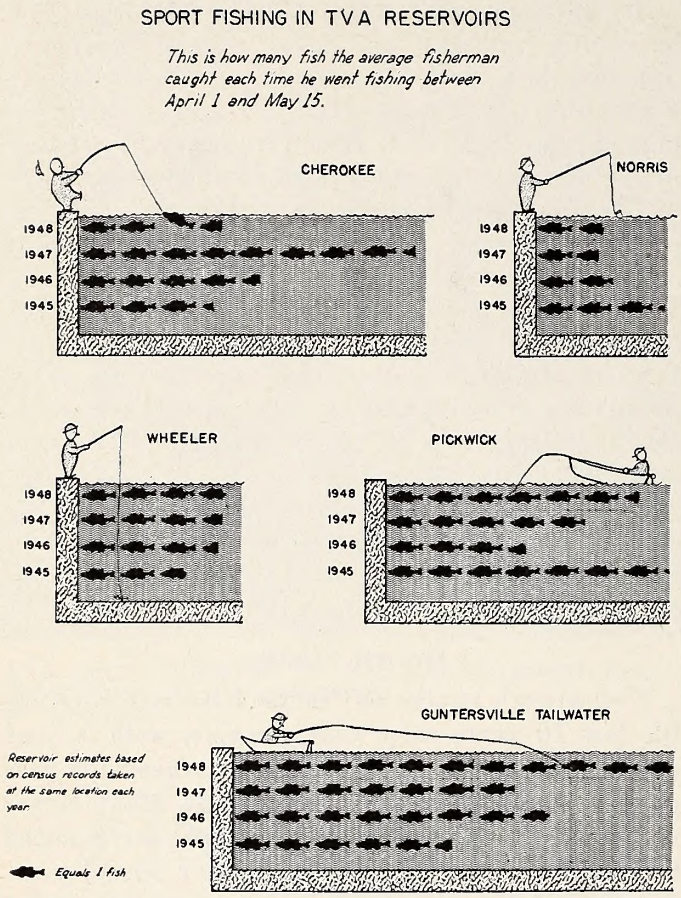
Fish growth studies on Norris Reservoir covering the last 10 years show bass, crappie, walleye, and sauger still growing rapidly, with largemouth bass growing much faster than smallmouth. Many largemouth bass are 10 inches long their first year. Spotted bass reach the same length early their second year. Smallmouth bass are not legal size until their third year. Walleye may reach 15 inches early their second year. As expected, drum and bluegill are growing slowly. The food supply for these fish (insects for bluegill and crayfish and snails for drum) is almost nonexistent in deep, fluctuating reservoirs.

A comparison of the growth of game fish in Norris, Cherokee, Douglas, and Hiwassee Reservoirs shows most rapid growth in Norris and least rapid in Hiwassee; growth in the other two is intermediate and about equal.

Despite inadequate harvesting, growth studies still show a food supply in most reservoirs adequate to



Despite thousands of fishermen, fisheries biologists do not believe that hook and line fishing takes all fish that might be harvested.



maintain good growth of game fish. White crappie in Wheeler, as mentioned earlier, may be an exception.

Regional Coöperation

Much of the fiscal year work program was carried out in coöperation with other agencies. North Carolina fisheries workers were aided in a study of Lake James, and there were joint studies of Lake Blackshear in Georgia and the Upper Cumberland River in Kentucky. Fisheries people in Kentucky and Florida were given technical assistance on certain of their growth studies. Alabama and TVA fisheries personnel coöperated in fish rescue work at Wheeler Dam and at a dewatering project near Decatur. Oxygen and temperature studies on Dale Hollow Reservoir were undertaken jointly by TVA and the Tennessee Game and Fish Division. Atomic researchers at Oak Ridge were supplied with unfertilized fish eggs for use in their studies. Virginia Polytechnic Institute got assistance in planning a reservoir study.

TVA biologists participated in conservation workshops for teachers at four colleges. Georgia fisheries people and the Blairsville Chamber of Commerce are coöperating on fish tagging studies on Nottely Reservoir. The Marshall County Sportsmen's Club is doing most of the work on a Guntersville tagging study. Graduate students from the University of Missouri and Alabama Polytechnic Institute visited Norris and spent several days studying TVA fisheries methods. TVA fish specialists took part in a conservation conference called by the U. S. Army Engineers.

Commercial Fishing

The commercial fish catch in the TVA waters of Alabama totaled more than 1,262,700 pounds for fiscal year 1948 as compared with 1,117,170 pounds the preceding year. The gross income of fishermen this year was $320,490.

Included in the catch of non-game fish was 712,025 pounds of catfish, 223,050 pounds of buffalo, 117,250 pounds of carp, 138,675 pounds of spoonbill, 66,175 pounds of drum, and 5,540 pounds of sturgeon. Most of this fish, with the exception of spoonbill, is used locally; the spoonbill is exported for the most part to New York markets.

Members and employees of the Wildlife Resources Commission were saddened by the tragic death of Grover C. Quinn on March 25 when he was killed in a traffic accident near Thomasville. Quinn was employed on a Wild Turkey Restoration project and headquartered at Greensboro. He is survived by his wife, Helen C. Quinn, and his three-year-old daughter LeEllen, who are now living in Jacksonville, N. C. Quinn had worked for the Wildlife Resources Commission for nearly two years.

TVA reservoirs produce some big catfish.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

OFFICIALS OF THE U. S. FISH AND WILDLIFE SERVICE, GAME ADMINISTRATORS, SPORTSMEN, WRITERS, AND CONSERVATIONISTS OF THE SOUTHEASTERN STATES MET AT ATLANTA, GEORGIA ON APRIL 18 TO DISCUSS THE STATUS AND MANAGEMENT OF WATERFOWL, DOVES, AND OTHER MIGRATORY GAME BIRDS IN THE SOUTHEASTERN STATES AREA. HAYDEN OLDS, CHIEF OF THE GAME DIVISION OF THE N. C. WILDLIFE RESOURCES COMMISSION REPRESENTED THE DEPARTMENT. ONE OF THE PURPOSES OF THE MEETING WAS TO RESOLVE DIFFERENCES OF OPINION AS TO DATES FOR DOVE AND WATERFOWL SEASONS. FINAL OUTCOME OF THE DISCUSSIONS WILL NOT BE KNOWN UNTIL THE FISH AND WILDLIFE SERVICE HAS HAD AN OPPORTUNITY TO CONSIDER THE DESIRES OF STATE GAME ADMINISTRATORS AND SET UP THE 1949-1950 REGULATIONS.

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WATERFOWL HUNTERS WHO COMPLAINED OF THE SHORT SEASON AND SMALL BAG LIMIT DURING THE 1948-1949 SEASON MAY TAKE HEART FROM THE FISH AND WILDLIFE SERVICE'S ESTIMATE OF THE INCREASE OF BIRDS IN LAST FALL'S FLIGHT OVER THE PRECEEDING YEAR. ALBERT M. DAY, DIRECTOR OF THE SERVICE HAS REPORTED AN INCREASE OF 48 PER CENT IN THE ATLANTIC FLYWAY. DAY REPORTED THAT INCREASES IN WATERFOWL ON A NATIONAL BASIS WERE OFFSET BY THE SALE OF OVER 2,000,000 DUCK STAMPS, THE HIGHEST NUMBER EVER SOLD IN ONE SEASON. DAY ALSO INDICATED THAT DOVE POPULATIONS IN THE EASTERN FLYWAY HAVE TAKEN A NOSE-DIVE AND THESE BIRDS ARE AT PRESENT IN A CRITICAL CONDITION.

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RECEIPTS FROM THE SALE OF HUNTING AND FISHING LICENSES INDICATE THAT THE 1948-1949 FISCAL YEAR WILL BE THE GREATEST IN THE HISTORY OF NORTH CAROLINA BOTH FROM THE STANDPOINT OF REVENUE AND THE NUMBER OF SPORTSMEN TAKING TO THE FIELDS AND STREAMS DURING THAT PERIOD. THE INCREASED REVENUE WILL BE ABSORBED IN AN EXPANDED PROGRAM OF WILDLIFE MANAGEMENT.

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A BILL INTRODUCED IN THE N. C. HOUSE OF REPRESENTATIVES TO ABOLISH THE WILDLIFE RESOURCES COMMISSION AND PLACE THE ADMINISTRATION OF THE GAME AND INLAND FISHERIES OF THE STATE UNDER THE JURISDICTION OF THE DEPARTMENT OF CONSERVATION AND DEVELOPMENT WAS REFERRED TO THE CALENDAR COMMITTEE AND KILLED BY THAT COMMITTEE.

____*****____

BY LATE APRIL NORTH CAROLINA'S NATIONALLY FAMOUS ROCKFISH RUN IN THE ROANOKE RIVER SEEMED TO BE WELL UNDER WAY, ALTHOUGH COOL WEATHER, RAINS, AND FLOODS DELAYED FISHING FOR ROCKFISH BY TROLLING. EARLY FISHERMEN HAD EXCELLENT LUCK STILL FISHING WITH MINNOWS FOR BAIT. AT PRESS TIME NO RECORD-BREAKING ROCKFISH HAD BEEN LANDED BY ANGLERS, ALTHOUGH A 44-POUNDER WAS BROUGHT TO BOAT WITH A DIPNET.

____*****____

THE WILDLIFE RESOURCES COMMISSION'S WEEKLY RADIO PROGRAM MAY NOW BE HEARD OVER SEVEN RADIO STATIONS IN THE STATE. FOLLOWING ARE STATIONS, DAYS AND TIME: WNAO, RALEIGH, SATURDAYS, 6:15 P.M.; WDUK, DURHAM, SATURDAYS, 6:15 P.M.; WWNC, ASHEVILLE, TUESDAYS, 6:30 P.M.; WFNC, FAYETTEVILLE, (CONSULT LOCAL PAPERS FOR TIME); WRRF, WASHINGTON, SATURDAYS, 1:15 P.M., AND WGAI, ELIZABETH CITY, SATURDAYS, 1:15 P.M.

____*****____

THE N. C. WILDLIFE RESOURCES COMMISSION IN COOPERATION WITH OTHER AGENCIES IS OPERATING THE ONLY ROCKFISH HATCHERY IN THE WORLD AT WELDON THIS YEAR. SPAWN FOR HATCHING IS OBTAINED FROM FISHERMEN WHO VOLUNTARILY BRING SPAWNERS TO THE HATCHERY FOR STRIPPING. MOST OF THE FRY PRODUCED WILL BE STOCKED IN THE ROANOKE RIVER, WITH SOME GOING INTO OTHER N. C. RIVERS.

Grade school girls put wildlife designs on sewing, while the boys make bird houses. Such activities create interest in wildlife.

It was a big day for Cleveland School s
of the day. Here an eighth grade pupil
an assembly of students.

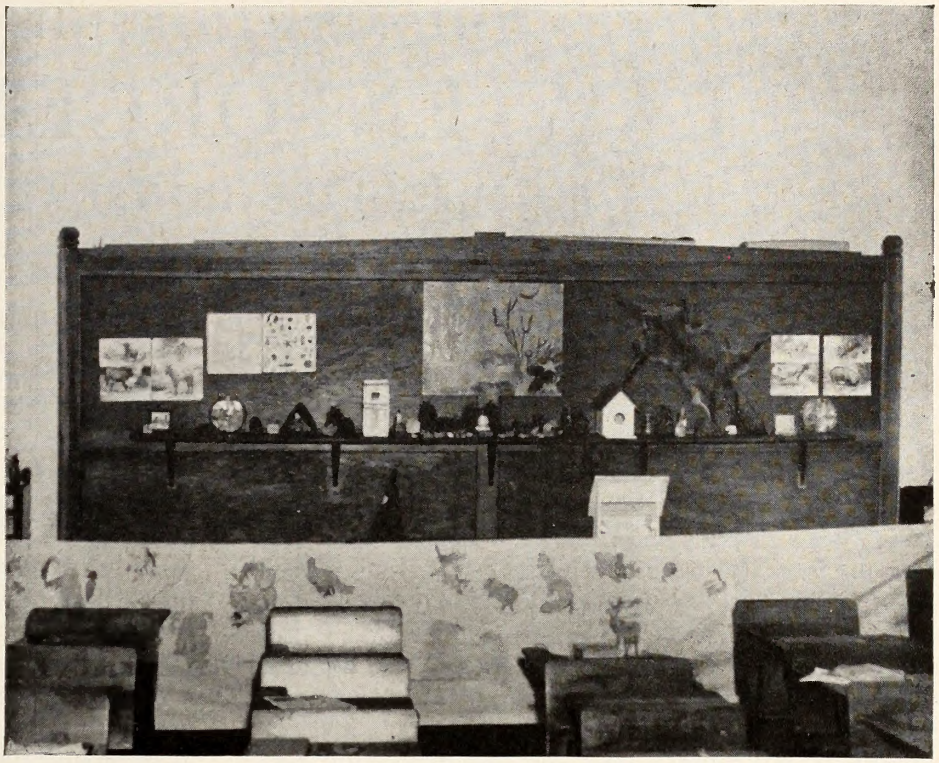
This group of Cleveland School lads are doing something practical about wildlife conservation. They are holding nail kegs which have been converted into squirrel boxes to aid this year's squirrel crop.

CLEVELAND S STUDENTS L ABOUT CONSE

Cleveland School in
is Setting the Pace in
life Conservation i
Schools. Miss Lunt
from Left in Picture
has Started a Tre
Spread to School S
out the State.

Top and lower left photos by
Bernadette

dents when wildlife was the topic
ds a discussion on wildlife before



Art classes go in for wildlife too. Here is a display of art work including, drawings, painting, and posters.

SCHOOL
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ohnston County
Teaching Wild-
North Carolina
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Donat. Lower right by
yle.

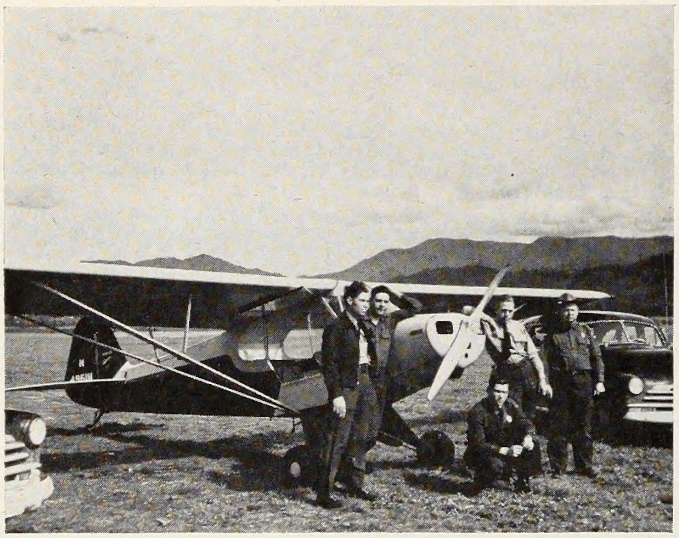
An outstanding 8th grade student displays an apartment house for birds. Left to right: County Supervisor Hall, Lunette Barber, Elgie Allen, Win Donat.

THE RELATIONSHIP OF LAW ENFORCEMENT TO WILDLIFE CONSERVATION

By Curtis S. Allin, Regional Supervisor of Law Enforcement
United States Fish and Wildlife Service, Boston, Massachusetts

A paper presented to the Southeastern Association Game and Fish Commissioners, Lafayette Hotel, Lexington, Kentucky, October 31 to November 2, 1948.

Since the beginning of time we have had laws, customs and regulations; some were laws of nature, others were customs accepted by almost every living creature from the lowest to the highest. Our man-made laws number close to nine million. Let us look back and consider some of these historic and we might say pre-historic regulations, which have been handed down from generation to generation. Have they been "accepted with a grain of salt," or have they all been popular? Our Biblical laws and our man-made laws say, "Thou shall not kill," yet this afternoon's paper will tell more than one murder story.



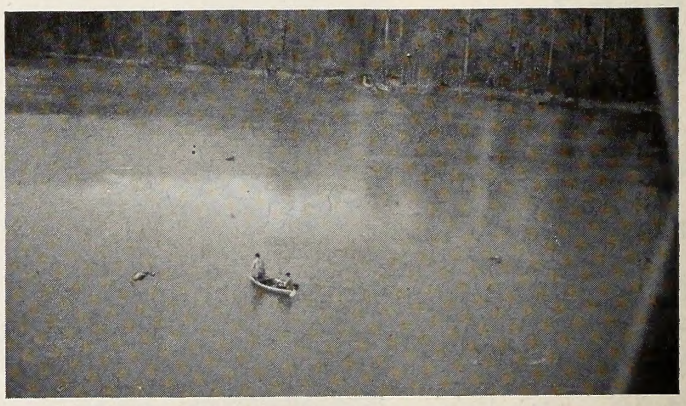
A patrol plane and patrol cars equipped with two-way radios are an important addition to game and fish law enforcement in North Carolina. (Photo by Tom L. Rollins.)

Of course the history of game laws goes pretty far back. The right to take game has been subject to legal control since early days. Before the Magna Carta in 1215, wild animals and birds in England belonged to the king as an individual, afterward, title to wildlife was vested in the king in his sovereign capacity—or, in other words, in trust for all the people. The colonies brought this principle of common law to America, and from it, the States derived title to the wildlife within their borders.

The earliest reference to the rights in game in this country probably was in 1629. In that year the West India Company granted hunting privileges to persons establishing colonies in New Netherlands, which is now a part of New York State. Since that early date there has been an ever increasing volume of laws and regulations to control the taking of game. During the colonial period, twelve colonies enacted such laws. By 1860 game laws had been passed in thirty-one states. These laws were not so complex as the codes of today. But, they show that our forefathers realized the value of game and the need of protecting it.

There was one weak link in the chain. There was no adequate enforcement provided for these laws. This responsibility was largely delegated to local peace officers, and many of these officers were indifferent to their obligations.

As near as we can learn the first regular game officials in America were the "deer wardens" of Massachusetts in 1739. New Hampshire also had deer wardens two years later, and there were "moose wardens" in Maine in 1852.



Fishermen engaged in illegal netting are easily spotted from the patrol plane, and information radioed to patrol cars on the ground. (Photo by Tom L. Rollins.)

During the trying years after the Civil War and during the settling of the West, little consideration was given to game, perhaps because of its abundance. We accepted the rich wildlife heritage as a never failing resource. Earlier settlers likewise looked upon the land as inexhaustible. Have we learned a lesson? We exterminated the passenger pigeon, heath hen and threatened the whooping crane and buffalo with the same fate. Today we are ashamed of what we did

to the passenger pigeon, heath hen, whooping crane and the buffalo. But we must admit that the slaughter did awaken a new consciousness of wildlife needs, and this paved the way for modern game management.

All of our States maintain an Enforcement Division applying numerous titles to their enforcement officers who will always be known to John Q. Public as Game Wardens. I wonder how many administrators actually know their wardens; they are an unusual class of men who are doing a job the requirements of which are unknown to the public, and to most of their bosses. Let us consider some of the requirements of a modern conservation officer who in most cases is underpaid and his many chores not appreciated.

Qualifications of a Modern Conservation Officer

1. He must be a Biologist which would make him a Botanist and Zoologist, as he must know something of the origin, structure, functions and life history of vegetable and animal organisms.

2. An Anthropologist; as he must study the science and history of the human race.

3. A Conchologist; if he expects to handle oysters, clams and mussels.

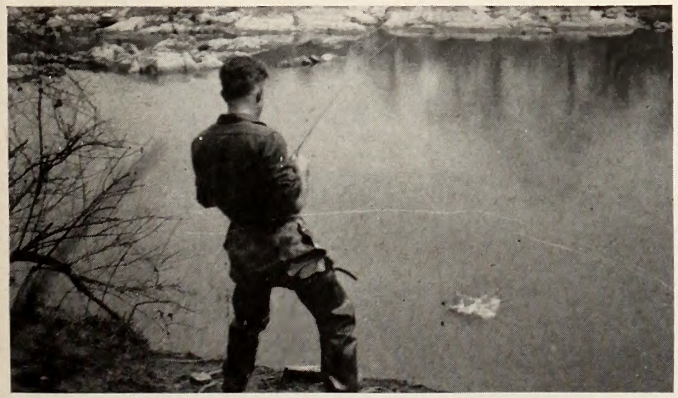
4. An Entomologist; as he will be combating friendly insects including the mosquito, tick, chigger and others.

5. A Herpitologist; for he had better know the difference between a rattler, copperhead, cottonmouth, and a bull snake, cow sucker and garden snake.

6. A Mammalogist; his dealings will be with wild as well as domestic mammals.

7. A Paleontologist; he will deal with a supervisor or central office who are fossils in any field man's book.

8. An Ornithologist; birds will comprise a special study for him.



Game protectors must check thousands of fishermen to see that they have proper licenses and do not take more than the limit allowed by regulations. Wildlife Patrolman Jack Campbell took this action shot of a fishermen struggling with a bass.

9. Ichthyologist; branching out in his zoology in knowing his fish.

Some of the less technical positions he must fill are:

10. A Policeman; he must arrest violators that he observes infringing on game and fish laws.

11. An Investigator; in running down tips and information.

12. An Attorney; for he must prepare and handle his cases in court.

13. A Sprinter; he will be forced to run down many a violator.

14. An Automobile driver and mechanic; for a lot of time will be spent wearing out the seat of his pants.

15. A Boatman and Mechanic; he must be versed in the operation of all floating equipment.

16. An Orator; as he will be called upon to deliver speeches before many organizations.

17. A School Teacher; much time will be spent in schools and before youth groups explaining the why's and wherefore's of conservation.

18. A Doctor; he will be called on numerous times to act in emergencies using his training in life saving and first aid.

19. An Engineer; with the revival of farm pond construction he will be called on to locate suitable spots, run lines for dams and give advice on plantings, etc.

20. A Farmer; for he must know the difference in soils, have the know how to advise fellow farmers to improve their lands for more wildlife, which is his crop to improve.

21. A Typist; as the number of reports, memorandum, etc., are increasing every month.

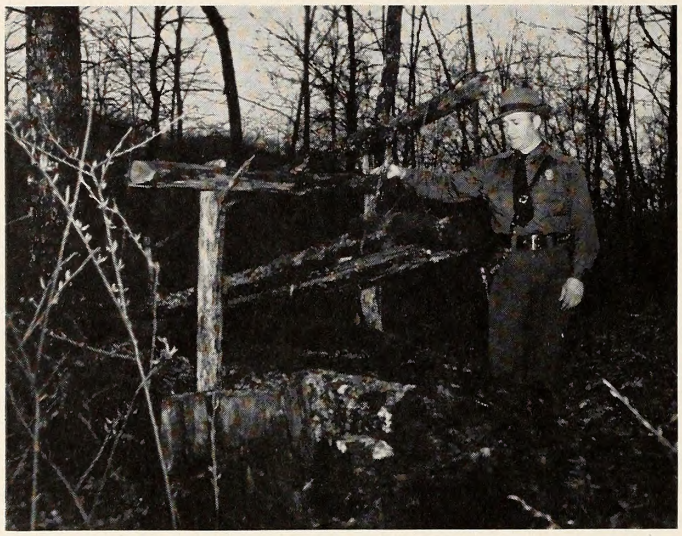
22. A Diplomat; to keep the department out of hot water as well as himself.

23. An Airplane Pilot and Radio Operator; it is here gentlemen, you are going to have to meet the violator fire with fire. The airplane and radio are the answers to many of our enforcement problems.

24. Moving Picture machine operator; visual education is here to stay and he is going to have to use it.

25. Forester; a conservation officer should be well versed in the native timber and wildlife food produc-

Illegal fish traps can be seen from the air. Here are part of over 200 traps taken this spring by fish and game protectors. (Photo by Jack Campbell.)



An illegal bear trap found in Western North Carolina, in Jackson County near Smoky Mountains State Park. District Game Protector Bart Cope is posed with the deadfall type trap.

ing trees in his State, be trained in the proper use of fire-fighting equipment.

26. Guide; many times he is called upon to visit remote districts, he must be able to find his way back to his car or boat.

27. Salesman; he is in most cases the sole representative of his department in his district, therefore, on his shoulders rests the responsibility of selling himself and his department's program to the local citizens.

28. Furrier; he will be called upon to identify the different furs or pelts from fur bearers, likewise identify a prime from unprime pelt.

29. Preacher; his doctrine will fit into any creed or religion as his sermon should be delivered seven days each week, from the creek bank to the temple. His text is "Let us play the game fair and save some seed for another year."

30. Last but not least he is a Banker; for if he can stretch that pay check for enough to meet all current expenses he can qualify as an expert, which is to accept a job as Conservation Agent, the one man who must complete more different assignments than any other man living or dead (except another Game Protector). If he is a success in his calling he may rest assured his efforts have not been in vain as he is one of the few who can say, "A Game Protector is born, not made."

The Game Management Branch of the Fish and Wildlife Service, Department of the Interior, is charged with enforcing the provisions of the Migratory Bird Treaty Act, Migratory Bird Conservation Act, the Migratory Bird Hunting Stamp Act, the Lacey Act, the Black Bass Act, and the Bald Eagle Act, in that these regulations are carried out it is essential that every citizen lend his assistance in coöperating to restore and preserve this resource.

Since the passage of these acts by Congress to assist the States in added protection, most of the States have made laws to coincide with those of the National Government as pertaining to Migratory Birds, likewise making it possible to punish apprehended violators in either Federal or State Courts or both. That action by your States made it possible to combine State and Federal forces against the violator. A minor infringement of both laws is usually taken to State Court, not that State Courts are more lenient, but most violators prefer to face a State Court judge if they are guilty than they would a Federal judge.

It is the duty of our Game Management Agents to assist in the enforcement of all State game and fish laws and to transmit all evidence to the proper State authority. The Game Management Agent must handle or assist in all cases where a Federal violation has taken place. It is our hope that you have received 100 per cent coöperation from our Game Management Agents.

Hunters who violate the migratory hunting regulations and state regulations are not all we have to contend with. There also are: duck trappers, bootleggers and buyers, big game hunters who illegally ship their kill across state lines, importers who transport wild birds and mammals illegally across state or international boundaries, then there is the fur trapper or merchant who is handling hot fur from your state. If you think you have your fur business under control, I say you are being fooled. I will be pleased to discuss this problem with any of you later as it is quite a story.

We must have protection, for without it, Game Management would fail. By protection we mean the strict and impartial enforcement of laws. It is the means of curbing the violator, who through ignorance, egotism, or profit kills without regard for his fellow man or the future welfare of wildlife. Without law enforcement there would soon be no game or fish left to be taken. The violators would in

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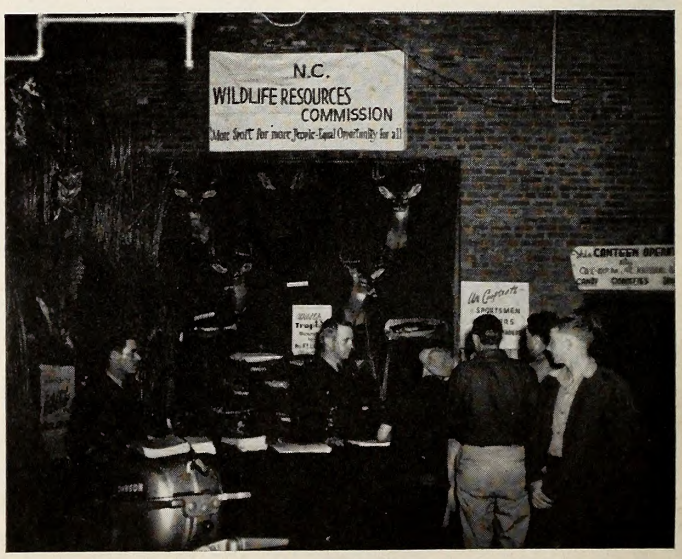

Game protectors help with wildlife exhibits such as this one which was set up by Protector Bob Logan, Chapel Hill, at the annual Sportsmans show at Morganton. The show was sponsored by the Mimosa Fishing Club of Morganton.

RAISE YOUR OWN BAIT

An Experiment in Producing Golden Shiners

By

EDWARD E. HUESKE, *Fisheries Biologist*
North Carolina Wildlife Resources Commission

Because of the increasing demand for bait species and information regarding their propagation, an experiment with the golden shiner* was conducted in an effort to provide first hand information for North Carolina fishermen. This experiment was carried on at the Fayetteville Fish Hatchery which is owned by the North Carolina Wildlife Resources Commission. Golden shiners have been successfully cultured elsewhere, but no record of success of propagation in North Carolina seems to exist.

The Brood Pond

The brood pond used for propagation had a surface area of .1 acre, the depth ranging from 1 foot to 6 feet according to the slope of the bottom. The pond was equipped with a controlled inlet and outlet, a feature which is very desirable in a brood pond. This is because a controlled pond means maximum returns from fertilization and simplifies fish removal. The aquatic vegetation in the pond was almost entirely the small plant *Eleocharis acicularis*. Although aquatic vegetation is usually undesirable in ponds, it seems to have had a desirable effect in this experiment because of the breeding habits of the golden shiner.

Selection of Breeders

Fifty adult golden shiners were placed in the .1 acre pond on April 15, 1948. These fish were in good condition and varied in total length from 5 to 11 inches. All of these breeders were obtained from a nearby lake, and consequently, they became acclimated quickly as there was little change in water quality. The breeders were not placed in the pond in a known sex ratio because sexual differences could not be detected. They remained in the pond until it was completely drained.

Fertilization

In order to increase the natural food in the pond, an attempt was made to maintain a heavy bloom constantly through fertilization. Each monthly application consisted of 25 pounds of 6-8-4 commercial fertilizer, 10 pounds of sheep manure, and 2½ pounds of nitrate of soda. One half of this was applied on the first day of each month, and the other half on the fifteenth day. Fertilization continued at this rate from May 1 to September 1. The sheep manure was used to stimulate the growth of plankton crustacea which is excellent food for golden shiners.

Because the water in the pond was slightly acid (pH 5.6), 20 pounds of agricultural lime was added in three applications during the month of May. The reaction began slowly, then suddenly jumped to a pH of 9.5 and remained above neutral throughout the warmer months. The use of the lime seemed to have been helpful in maintaining a good plankton growth in the pond.

Pond Production

During the two month period from January 11 to March 11, 1949, a total of 18,500 golden shiners weighing 21.29 pounds were removed from the pond. The pond was completely drained on March 11, 1949, and all fish removed. The following table gives a summary of the total production.

Total Length (inches)	Number of Golden Shiners	Total Weight (pounds)	Percentage
1¼—2	16,743	19.27	90.5
2 —3	1,258	1.45	6.8
3 —4	499	.57	2.7
TOTALS	18,500	21.29	100.0

As shown in the table, only about 10 per cent of the total production were fish greater than 2 inches in total length. This percentage probably could have been increased through the use of more fertilizer or fewer breeders, or a combination of both.

Suggestions for Propagation

1. Use a small pond (.1 acre or slightly less) constructed so that the water level can be controlled and so that the pond can be drained. About 15 per cent of the pond should contain water approximately 1 foot deep. The pond depth should vary from 1 foot to from 4 to 6 feet. A constant level should be maintained, but an overflow is undesirable as it wastes organisms produced by fertilization.

2. Aquatic vegetation may not be essential for

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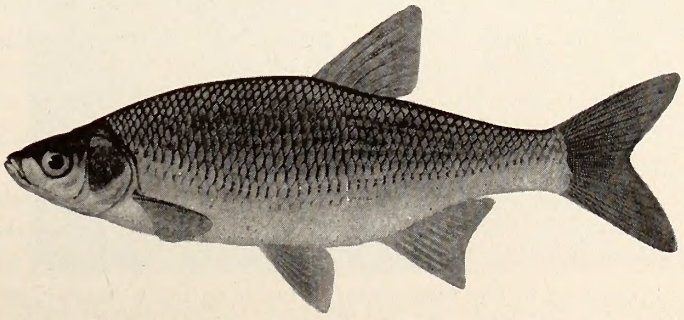


The golden shiner is a favorite bait for crappies and bass.

* *Notemigonus chrysoleucas*, also known popularly as roach, shiner, shadroach.

DOES STOCKING PAY?

A Frank Discussion of an Important Problem

By Dr. Clarence Cottam
Assistant Director, U. S. Fish and Wildlife Service

I believe the topic "Does Stocking Pay?" is most timely and appropriate for many reasons. An important consideration is that millions of dollars have been wasted in stocking programs. Therefore, it is appropriate that we review the problem rather carefully. I want to point out a few fundamental ideas concerning stocking that might be worth stressing.

One important point all sportsmen should realize is that they, as sportsmen, or their clubs or associations or their State fish and game commissions, have only so much money. If those funds are spent for any one thing such as game farms, that money will not be available for something else. If the sportsmen or the State spend money for a stocking program for pheasants, it is perfectly obvious that that money will not be available to effect habitat improvement or stream development, enforcement, or a thousand and one other things necessary to maintaining populations of fish or game.

The realistic and intelligent approach, therefore, is to attempt to develop a sense of relative values, and to use the money where it will do the most good for the cause for which we are working. The fundamental objective of all of us is essentially the same; viz., to produce more wildlife—in this case, to produce more game. Therefore, the first point is: Let's develop a sense of relative values and use the money where it will do the most good.

I am not unmindful that we are dealing with human beings and, consequently, only half of the problem is handling the game. We have to handle the "night life" as well as the "wildlife." The game manager who doesn't recognize the importance of dealing with people is going to make a mess of things regardless of how good a biologist he may be.

Another point of profound importance, one which we should always remember, is a basic principle observable in all forms of life: its tendency to reproduce to the maximum. This is equally characteristic of rabbits, pheasants, deer, muskrats, oysters, or bacteria. Bear that in mind in your stocking program! The biological urge to reproduce! All game, all forms of life, have a normal proclivity to produce more than the environment will permit; that is, the species will produce on and on and on quite indefinitely if it is given an opportunity. Assuming that there is the necessary minimum of breeding stock of game, the urgent need is for the development of favorable habitat—not for stocking. Work with Nature always pays the highest dividends. If the environment is favorable, and if the necessary minimum of breeding stock is present, stocking is useless and a waste of funds unless the stocking is done during the hunting season, when said stocking is made specifically for the gun, and the kill is expected to be far greater than the sustained yield. Where stocking is for the gun, costs are terrifically high, ordinarily cannot be supported by the State on economic grounds. Admittedly, this approach has political and public-relations value—especially if the State game department is not strong nor dynamic in leadership—but it is not biologically sound.

Another fundamental which we ought to consider, and which is associated with the biological urge to reproduce, is that there is a limit to the carrying capacity of the land for whatever species of game or other product of the land may be under consideration. This is as true in the production of pheasants or quail as it is in the production of corn, cattle, or cauliflower. Each acre of land environment can produce only so much. This limit varies with each environment and with each species of game or other organism, whether it be a vegetable or other plant crop, bacteria, oysters, ducks, pheasants, or deer. That limit of the carrying capacity is determined by a great number of closely inter-related ecological and biological factors. Research and practical experience can give us much of the essential information on the biological requirements of the different species of game and other wildlife. Regardless of the number of individ-

uals of a given species that may be present or stocked in a given environment, Nature will, by one means or another, eliminate all stock in excess of the carrying capacity of that environment. This natural reduction normally occurs during the most unfavorable period of the year. If we want more game or other wildlife, we must raise the carrying capacity of the land for that species. Stocking alone will not do this.

Another fundamental to consider in dealing with this stocking problem, and particularly in connection with small upland game, is the tremendously high annual turn-over. On the basis of about 125,000 banding returns from wild ducks, we are compelled to conclude that the life span of fully 70 per cent of these birds, which reach the flying stage, is considerably less than one year.

I am convinced that the annual turn-over of pheasants and of quail is certainly no less than that for waterfowl. The turn-over of our small upland game and fish is probably much greater than that for waterfowl.

This should give us food for thought in any stocking program. It certainly suggests that even if the stocked game or fish were as capable of surviving in the wild as the wild stock (and obviously the stocked forms are not as capable), and even if the environment is favorable (and frequently it is not), even then not less than 70 per cent of the game stocked will perish during the first year! It seems to me that this should suggest to any intelligent worker that if he is thinking beyond the present—if he is concerned with population dynamics of game for next year, and for the future—he should do something more basic and fundamental than merely to dump quail, pheasants, or rabbits on a farmer's field and hope they will all reproduce to the extent of their maximum biological potential.

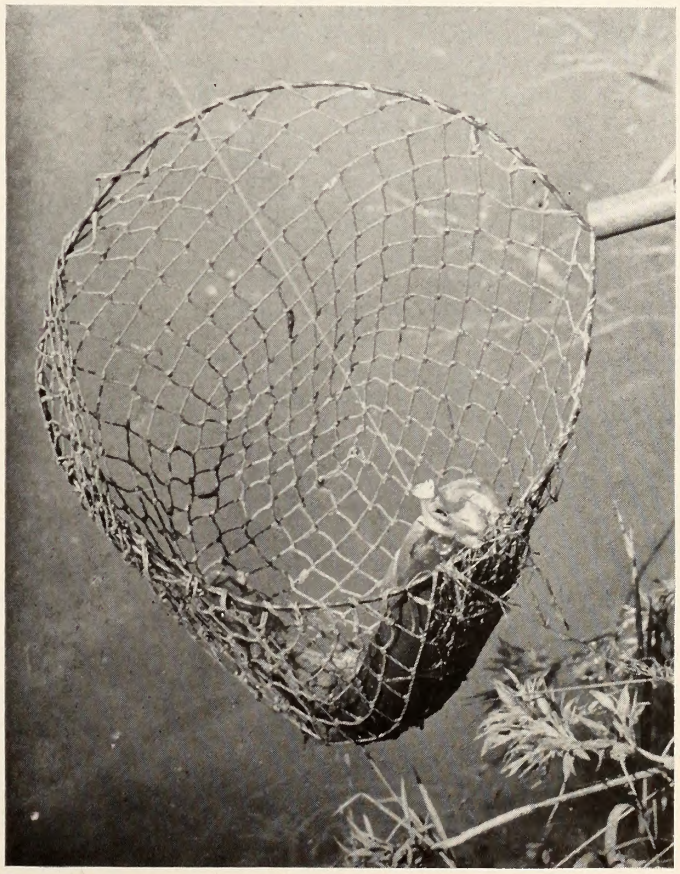
A large number of studies have shown conclusively that when you make plantings you are completely wasting your time and money if the environment is not favorable. Such plantings have no beneficial effect whatever. To take an extreme case, the oyster requires a salty environment found in the ocean, and rabbits require an agricultural type of environment found on land. Much of our planting has been like dumping oysters on rabbit land and rabbits in the ocean. Much of our planting has been absolutely worthless. The environment must be favorable to the particular species we are planting.

One other thought I want to leave with you. We are living in a scientific era. Our progress in public health, in industry, in chemistry, and in agriculture, is largely the result of a good scientific approach. Let's put wildlife management on the same common-sense, horse-sense basis. If we are going to succeed, we must follow a scientific procedure, realizing that cause and effect are just as important in the field of wildlife conservation as anywhere else. If game is scarce in a given area, it is obvious that some factor is responsible for that condition. The intelligent approach would seem to be to determine what those factors are and correct them rather than to proceed blindly on a stocking program.

In order that I may not be misunderstood, I must state that there are times and conditions when artificial propagation and stocking programs are highly desirable and in the public interest. In fact, you wouldn't have any pheasants in New York State or anywhere in America if it had not been for the introductions of pheasants and a stocking program. Many sections of many States now have deer, pheasants, quail, and grouse, that would not be available were it not for successful stocking programs in the past. Many of America's most important agricultural crops had their origin in foreign lands.

In the field of fisheries, there are perhaps more conditions than there are in wildlife where stocking is biologically sound or otherwise justifiable. In general, plantings seem to be justifiable—assuming, of course, that habitat is favorable—under the following conditions:

1. Stocking for new introductions, or re-introductions, of needed and desirable species.
2. Stocking fish for farm ponds under a planned program.
3. Stocking salmon and other anadromous fishes where high dams have eliminated much or all of former runs.
4. Stocking for "put and take"; i.e., planting fish in waters favorable for growth and develop-



Fish like this are taken from farm ponds which have been properly stocked—and properly managed.

ment but where there is no spawning or only limited spawning, or perhaps where fishing pressure far exceeds the productivity of the stream.

5. It may be economical and justifiable to plant predaceous fish in some waters overpopulated with stunted fish.

However, except under some of those conditions noted above, stocking programs for either game or fish at the very least is a most expensive luxury.

LAW ENFORCEMENT

(Continued from page sixteen)

a short time kill off all the breeding stock. Some people can be educated by one means, while there are others which can not be handled except by our courts giving them the limit.

The modern "Game Warden"—and I've seen them in many States. He is no longer the political underling who holds his job by catering to the right persons. Most states are to be congratulated upon the high caliber men comprising their Protection Division. Repeatedly in the past few years, it has been impressively demonstrated that they are more than "Game Wardens," but in fact are, "Wildlife Conservation Agents" with all that such titles imply. I am grateful for my association with them.

Directed studies of wildlife demonstrate a far-sighted administration. Research indicated a desire for facts undiscovered. But those are imaginative processes. Protection is an actuality. It is within our reach. It is as sound and as old as the animal kingdom. "Hold fast to that which is good."

RAISE YOUR OWN BAIT

(Continued from page seventeen)

reproduction, although the golden shiner seems to prefer to spawn on vegetation when it is available. A few dry pine branches or similar material placed in the shallow water of a new pond may prove to be desirable. Aquatic vegetation should not be planted.

3. Breeders should be adults of from 5 to 10 inches in length, and should be placed in the pond by April 1. The number of breeders will depend on the results desired. Based on the results obtained in the experimental pond, it seems that 20 adult breeders should be adequate in a .1 acre pond.

4. Fertilization must be applied in order to provide food for the large number of young produced by golden shiners. The addition of 40 pounds of 6-8-4 commercial fertilizer and 4 pounds of nitrate of soda every 30 days to a .1 acre pond from May through September should normally be adequate for most ponds in North Carolina. Lime should not be used unless pH of the water is determined and found to be quite acid. Organic fertilizer should be used cautiously as over-fertilization with this type of fertilizer can easily be done.

5. Golden shiners spawned in the experimental pond from the last week in April to about the first week in August. In view of this spawning period, a pond should not be lowered until after October.

THE RACCOON

(Continued from page six)

cold periods in winter months coons go into a period which is similar to but not actually hibernation. If food has been abundant during the fall, the animal is able to form enough fatty tissue to carry it through periods of adversity.

Management

Coons are creatures of the forest, and coon management is closely tied in with forest management. Selective cutting of forest trees may be modified to include leaving den trees for the benefit of the coons. Stands of mast-producing hardwoods provide an excellent source of food, and undergrowth in a properly managed forest will produce wild fruits and berries.

Controlled harvesting of coon populations is the most important single management measure. Coons are relatively prolific, although their fecundity cannot be compared to that of cottontail rabbits and squirrels. But they are tenacious of life, and the diversity of their diet makes it relatively easy for them to bear up well under heavy hunting and trapping pressure.

Various coon hunting clubs have made attempts at stocking coons, but often the new stock is imported from other states, and it is doubtful if coons imported from Florida, for example, can become sufficiently acclimated to establish themselves successfully.

A number of wildlife clubs are coöperating with 4-H groups and other rural youth organizations to set up artificial dens to benefit coons. Such practices are extremely beneficial to the species.

1949 FARM GAME PLANTINGS COMPLETED

(Continued from page seven)

to demonstrate the value of wildlife food and cover development. Farmers and sportsmen alike have been quick to see the advantages of wildlife plantings, and the individual demand for seeds and seedlings far exceeds the supply of planting materials.

The current supply of plants and seedlings is being stretched as far as possible among coöperators in the program, and no more applications for seeds and nursery stock for this year can be considered. Applications will again be received in October 1949, and the applications will be considered on a first-come-first-served basis. An effort will be made to distribute plants and seeds as evenly as possible throughout the State.

Planting stock for wildlife habitat is distributed free of charge to coöperators. Requirements are simple: land owners who have suitable areas on their farms for development receive plants and seed free of charge, agree to plant them according to the best interests to wildlife, and protect them from fire, grazing, and other hazards.

GET IT OFF YOUR CHEST!

EDITORIAL COMMENT, LETTERS TO THE EDITOR AND ANECDOTES

Conducted by Win Donat

Here it is May again—there's no mistaking it as the fishing tackle is being unlimbered all over the state. Questions will be popping as thick as wet flies on a trout steam in the western part of the state. These questions won't mean much unless they are mailed in to us. Surely the wildlife interest is not over because spring fever is epidemic—now's the time for much thinking to be done about our conservation problems and when we think on this subject, questions are inevitable. Just send your questions in a letter or card to me and look for the answer in an early issue.

Win Donat.

Q. "What are the laws regarding the training of young dogs on raccoons?" asks Mr. L. R. E. of Fountain, North Carolina.

So far as we know, there are no laws prescribing the seasons or conditions under which young 'coon dogs may or may not be trained.

Q. Snakes alive! Mr. J. S. of Lumberton, North Carolina, has heard of a "water rattler" and says, "That everyone who has offered to show one to me has pointed out a cottonmouth moccasin, and I wonder now if there is such a snake as the water rattler."

Messrs. Schmidt and Davis in their book *Field Book of Snakes of the United States and Canada* say that the brown water snake is found from North Carolina to Florida westward through the Gulf States to Louisiana. Perhaps this is the snake referred to in the question. They are large snakes and often frequent branches of trees overhanging the streams. While they are large and powerful they are non-poisonous but can do damage with their teeth. Finally, the authors say, "Because of their behavior and venomous appearance these creatures are considered as poisonous as rattlesnakes or true moccasins by most residents of the south."

Q. Here is the type of question that indicates real observation on the part of Mr. B. E. J. of Deep Run, North Carolina, who sent it in. He asks, "Several jack that I have caught recently contained a small yellowish flat worm in the fleshy part of the meat. What are these worms and how do they get in the flesh?"

All kinds of fresh water fish are subject to infestation by many sorts of parasites. The flat worms are common fish parasites and are transferred to water birds and reptiles, such as turtles, when they eat infested fish. The miniature worms thus eaten break out of their cyst to mature in the new host where they reproduce large numbers of young which are returned to the water. The cycle is then repeated. When cooked the flesh of the infested fish is usable as food. Parasites cannot be controlled in our wild fish.

Q. Mr. R. S. B. of Durham, North Carolina, asks, "Is there a special season for hunting with bow and arrow in North Carolina?"

The answer is yes, as one of our managed hunts last year was held in the Sherwood Forest for bow and arrow hunters only. This hunt permitted deer and bear only to be killed; in addition, the Federal regulations permit the taking of waterfowl in season with a bow and arrow.

Q. Someone else asks an interesting conservation question. Mr. J. M. A., Jr., of Gastonia, North Carolina, asks, "To what extent does the State of North Carolina furnish seeds and other help to a farmer desiring to establish food plantings for game? What is best to plant on unused farm fields?"

The Game Division of the Wildlife Resources Commission distributes plants of both lespedeza bicolor and multiflora rose, as well as lespedeza sericea seeds, to farmers for food plantings. However, the stock available for this purpose is extremely limited as the suppliers were unable to meet the demands this year. We might add that our supply for this season has been exhausted and suggest that you contact the Soil Conservation Service representative in your district as this agency also distributes food plants.

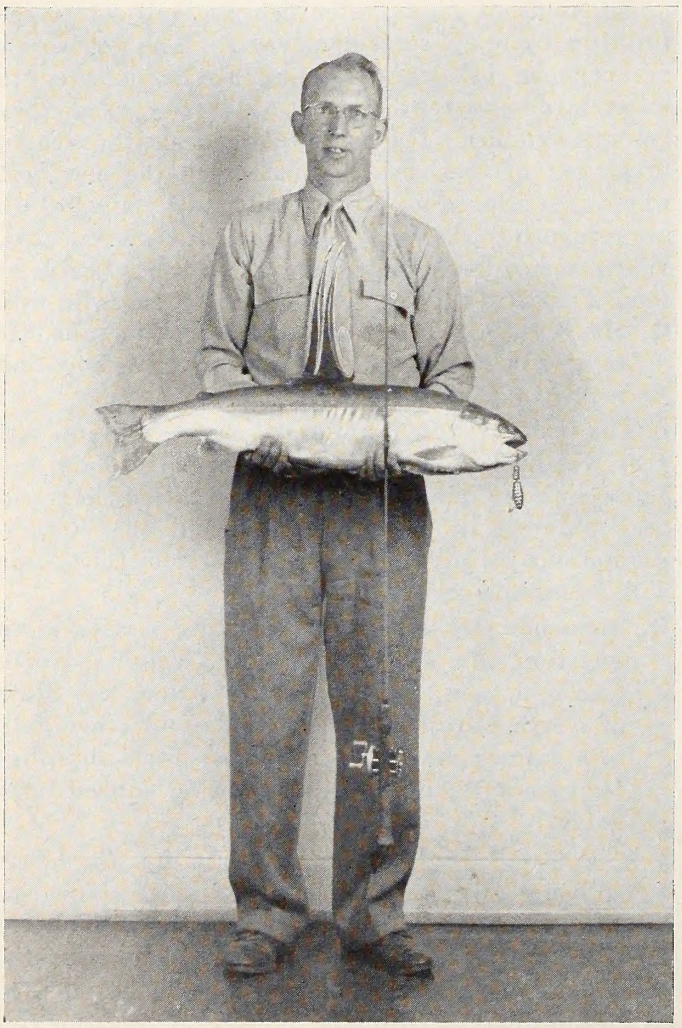
The trained personnel of the Wildlife Resources Commission are able to advise you on many of your game habitat problems.

Q. Mr. E. A. of Autryville, North Carolina, asks this one, "Is it against the law to set cat poles from the bank, if you use cut bait?"

Cat poles, or set poles, are considered to be classed as set hooks which are defined as "fishing with hook and line which is attached at one end only to a stationary of floating object" and is an unlawful method of fishing for game fish. It is not an unlawful method of fishing when other than game fish are caught. The following species are considered as game fish in North Carolina: Brook Trout, Rainbow Trout, Brown Trout, Largemouth Bass, Smallmouth Bass, Spotted Bass, Black Crappie, White Crappie, Bluegills (Bream), Redbreast (Robin), Rock Bass (Red-eye), Warmouth (Open-Mouth), Walleye (Pike-perch), Yellow Perch (Raccoon Perch), Muskellunge, Jack (Chain Pickerel), and all other varieties of sunfishes, perch and pickerel.

Since we have received many questions and inquiries concerning the catching of shad on artificial lures, my friend Tom in Hampton, Virginia, has given me some additional dope on lures as follows: "For lures, use copper, brass, or enameled spinners, size "O" or possibly as large as Number 1, with a cut red bead; also the Trix-Oreno, the Pippin Wobbler, Flicker Spinner or any similar lure in the smallest size. . . ." He goes on further to say that the popularity of any one lure varies from stream to stream. As the shad run will be well under way in many of our North Carolina streams by the time this reaches our fishing friends, we hope that you will promptly post us as to how and where you had any luck with these great fish. This is an entirely new sporting activity in our state and we want to do everything possible to increase the sport of fishing.

EARLY ANGLERS GET BIG FISH!



Max Gardner, of Waynesville, displays the largest rainbow trout ever caught east of the Mississippi River. He used a 5-foot casting rod and a black minnow bait to catch this 14-lb, 1-ounce, 33½-inch beauty from Glennville Lake in Jackson County. (Photo courtesy The "Waynesville Mountaineer.")

Here is the first channel Boss (or drum) taken from Oregon Inlet by angling this year. Dan Lewark, Sr. and Dan Lewark, Jr., owners of charter boat "Dixie" hold the 40-pound beauty. Although channel bass are not inland fish, many fresh water fishermen take to salt water for the spring run, and are interested in seeing these fish placed on the game fish list. (Photo by Carl Swain.)

These club officials organized the bird dog trial which was held at Camp Butner.
Left to right: G. L. Lyon, F. F. Aiken, Bob Johnson, Harris Lawson, Ralph E. Daniel.

These are highlights of the sixth field trial sponsored by the Durham Wildlife Club.

The trials started early in the morning, with judges and some spectators mounted on horses.

Durham Wildlife Club

A large crowd of spectators had gathered by noon. . . .

. . . and were fed barbecue and Brunswick stew at an outdoor gathering of hungry dog handlers and spectators.

Holds Field Trials

These are the men who did the judging, and spent the entire day on horseback.
Left to right: Judge Arthur Carver, Marshal Hugh E. Whitted, and Judge Dr. J. T. Bell.

Activities such as field trials place the Durham club among the most active in the state.

These four dogs were the winners of a field of 28 dogs on 14 courses which took nearly a half hour each to run.
Left to right: Glenn Bunting with Flo, 1st place; George Kales with Dan, 2nd place; Dillard Teer with Babe, 3rd place; Dr. Lewis McKee with Freckles, 4th place.

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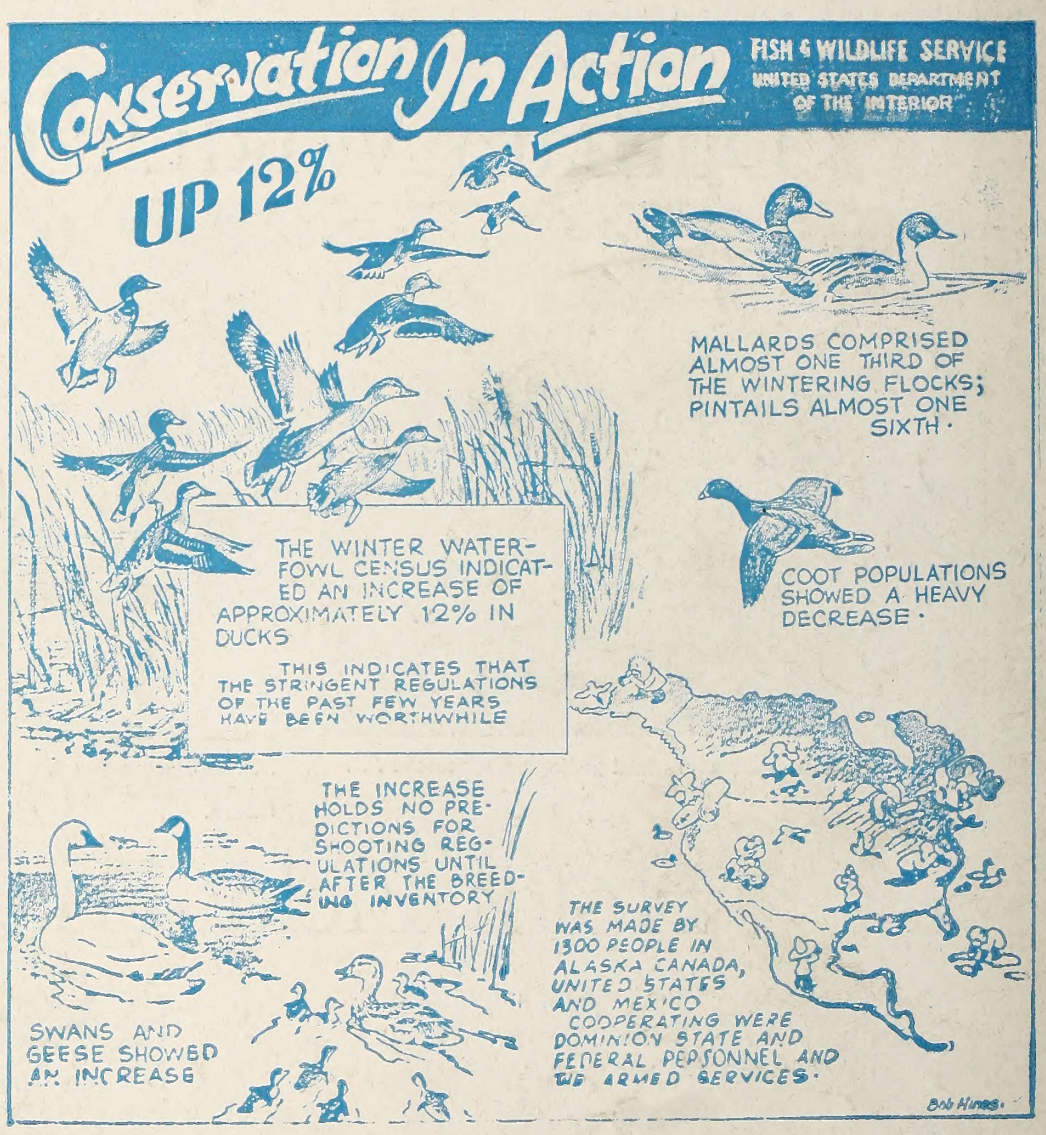
Next Fall's Duck and Goose Season Will Depend On This Summer's Production of Birds - - -



Despite An Overall Increase In the Flight Last Fall